

IN THE UNITED STATES PATENTS AND TRADEMARK OFFICE

Application of : Tomohiro Oshiyama et al.
Serial No. : 10/590,158
Filed : August 21, 2006
For : MATERIAL FOR ORGANIC
ELECTROLUMINESCENCE ELEMENT, ORGANIC
ELECTROLUMINESCENCE ELEMENT, DISPLAY
DEVICE AND ILLUMINATION DEVICE
Art Unit : 1794
Examiner : MICHAEL H. WILSON

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Tomohiro OSHIYAMA, hereby declare and say as follows:

That I am a post graduate from Tsukuba University having been awarded a Master's degree in Science and Engineering in March 1993.

That since April 1993, I have been employed by Konica Corporation (at present: Konica Minolta Technology Center, Inc.). During my employment, I have been engaged in the research and development of photographic materials and organic electroluminescent elements in the Research and Development Laboratory of my company.

That I am one of the inventors of the present application.

That I am familiar with the subject matter of the present invention.

Experimental

The following experiments were carried out by Tomohiro OSHIYAMA, one of the inventors of the present application.

The purposes of the present experiments are as follows:

(1) With respect to the rejection of Claim 1 over Kobayashi et al. (WO 03/084973 A1), the Examiner states that "The carbazole containing phenylpyridine ligands disclosed have free rotation of the carbazole blocked (second and third structures [0094]) the platinum complexes of such ligands would meet instant formulae (7) and (8)."

Specifically, the Examiner states that "While Kobayashi et al. do not specifically exemplify a platinum complex with these ligands, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling."

Accordingly, a first purpose of the present Experiments is to demonstrate that a platinum complex having a carbazole containing phenylpyridine of which free rotation of the carbazole is blocked shows unexpectedly higher "External Quantum Efficiency" and unexpectedly longer "Emission Life", which can never be obvious from Kobayashi et al., than those of an iridium complex having the same carbazole containing phenylpyridine of which free rotation of the carbazole is blocked, when these complexes each are used as an emission dopant of an organic EL element.

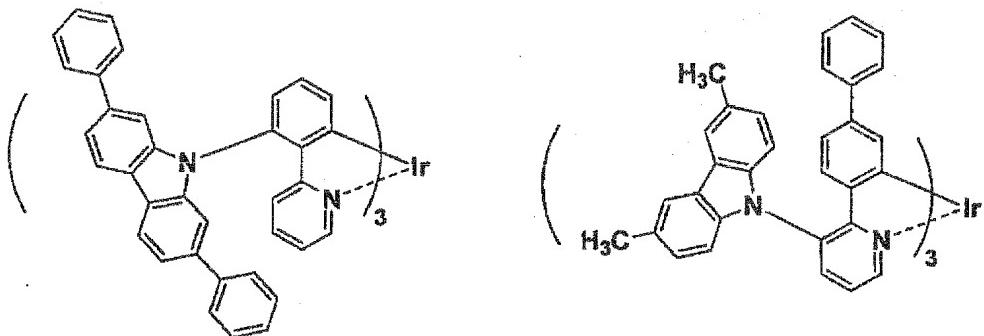
(2) In bridging pages of the Office Action mailed on March 26, 2010, it is pointed out by the Examiner that Claim 1 of the present Application is significantly broader than examples presented in the declaration and the specification, which applicant cites as examples of unexpected results.

Accordingly, a second purpose of the present Experiments is to present additional examples which show unexpected results of the present Application.

With respect to above Item (1), following iridium complexes 68A and 72A having the same ligands as those of platinum complexes 68 (page 45 of the Specification) and 72 (page 46 of the Specification), respectively, of the present Application were tested to compare the properties as emission dopants of organic EL elements with the properties of platinum complexes 68 and 72 of the present Application. Each of complexes 68 and 72 have a carbazolyl group of which free rotation is blocked.

68A

72A



With respect to above Item (2), the properties as emission dopants of organic EL elements of the following

compounds were newly tested to further show the unexpected results of the present Application:

Compound 8 in page 34 of the Specification having a trimethylphenyl group of which free rotation is blocked;

Compound 10 in page 34 of the Specification having a pyridyl group of which free rotation is blocked; and

Compound 11 in page 35 of the Specification having a naphthyl group of which free rotation is blocked.

The external quantum efficiency and the emission life of each of Compounds 68A, 72B, 8, 10 and 11 when used as an emission dopant of an organic EL element were evaluated in the same manner as described in page 140, lines 5 - 23 of the present Application.

The results were listed in Table 2-3. In Table 2-3, each external quantum efficiency was expressed as a relative value when the external quantum efficiency of Organic EL Element OLED2-1 in Table 2 in page 143 of the Specification was set to 100 and each emission life was expressed as a relative value when the emission life of Organic EL Element OLED2-1 was set to 100.

Table 2-3

Element No.	Emis-sion Host	Emission Dopant	External Quantum Efficiency	Emis-sion Life	Remarks
OLED2-1	CBP	Ir-1	100	100	Comp.
OLED2-40	CBP	68A	95	97	Comp.
OLED2-41	CBP	72A	94	95	Comp.
OLED2-42	CBP	68	113	140	Inv.
OLED2-43	CBP	72	114	137	Inv.
OLED2-44	CBP	8	113	156	Inv.
OLED2-45	CBP	10	110	142	Inv.
OLED2-46	CBP	11	112	150	Inv.

Inv.: Inventive, Comp.: Comparative

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001, of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated:

September 21, 2010

Tomohiro Oshiyama

TOMOHIRO OSHIYAMA